PROGRAM SOLICITATION FOR FINANCIAL ASSISTANCE APPLICATIONS NO. DE-PS26-01NT41048

DEVELOPMENT OF TECHNOLOGIES AND CAPABILITIES FOR DEVELOPING COAL, OIL AND GAS ENERGY RESOURCES

CONTACT: LISA A. KUZNIAR, CONTRACT SPECIALIST
TELEPHONE NO.: (304) 285-4242
FAX NO.: (304) 285-4683
E-MAIL: LKUZNI@NETL.DOE.GOV

ISSUING OFFICE:

U.S. DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY
MORGANTOWN SITE
P.O. BOX 880
3610 COLLINS FERRY ROAD
MORGANTOWN, WV 26507-0880

ISSUE DATE: DECEMBER 1, 2000

Information regarding this solicitation is available on the Department of Energy, National Energy Technology Laboratory web site at:
http://www.netl.doe.gov/business/solicit/index.html

TABLE OF CONTENTS

INTRODUCTION

This solicitation includes two (2) separate closing dates and uses a Two-Step Application process for each closing date. The purpose of the Two-Step Application process is to preclude potential offerors from expending unnecessary resources for preparation of a comprehensive application for projects that are not desirable under this solicitation.

STEP 1 includes the submittal of a Pre-application for evaluation in accordance with Section III of the solicitation.

ONLY THOSE OFFERORS WHOSE PRE-APPLICATIONS ARE SELECTED BY DOE WILL BE AFFORDED THE OPPORTUNITY TO PROCEED TO STEP 2.

STEP 2 includes the submittal of a Comprehensive Application for evaluation in accordance with Sections IV and V of the solicitation.

Offerors are hereby notified that comprehensive applications received on or before the pre-application due date for each evaluation period will be discarded prior to evaluation, and will not be evaluated. A solicitation schedule for both closing dates can be found in Section II, Article 2.7.

The solicitation is divided into six (6) sections as follows:

Section I Technical Requirements
Section II Conditions and Notices
Section III Step 1, Pre-application
Section IV Step 2, Comprehensive Application
Section V Step 2, Evaluation and Selection of Comprehensive Application
Section VI List of Attachments

Attachment A -- Areas of Interest
Attachment B -- Pre-application Cover Page
Attachment C -- Volume I Business and Financial Application Cover Page
Attachment D -- Volume II Technical Application Cover Page
Attachment E -- Cost Sharing Certification

SECTION I - TECHNICAL REQUIREMENTS

1.1 SUMMARY (JAN 2000)

The Department of Energy (DOE), National Energy Technology Laboratory (NETL), is conducting this solicitation to competitively seek cost-shared applications for research and development of technologies enabling development of energy resources needed to ensure the availability of affordable energy for the Nation's future.

This solicitation seeks applications for energy research and development related activities that promote the efficient and sound production and use of fossil fuels (coal, natural gas, and oil). Related information on the Fossil Energy Areas of Interest can be found on the "Technologies" page of the NETL website (www.netl.doe.gov) and on the "Program Areas" page of the National Petroleum Technology Office (NPTO) website (www.npto.doe.gov).

Through this solicitation, NETL expects to support applications in the following seventeen (17) separate (i.e., stand alone) Areas of Interest:

Coal & Environmental Systems:
(1) Power Systems Advanced Research
(2) Gasification Technologies
(3) Combustion Systems
(4) Carbon Sequestration
(5) Environmental & Water Resources
(6) Vision 21 Technologies

Fuel Processing
(7) Natural Gas Processing
(8) Transportation Fuels & Chemicals
(9) Fuels Advanced Research

Oil Technologies
(10) Ultrasonic Oil Well Stimulation
(11) Reservoir Efficiency Processes
(12) Oil & Gas Environmental
(13) Critical Upstream Advanced Diagnostics and Imaging Technologies
(14) Emerging Process Technology

Strategic Center for Natural Gas
(15) Gas Exploration, Production & Storage
(16) Advanced Turbines
(17) Fuel Cells

Applicants must select and target only one (1) Area of Interest per application. Should the offeror propose different technologies/technical approaches for a single Area of Interest, a separate application must be submitted. Background information and objectives for each Area of Interest are detailed in Attachment A.

SECTION II - CONDITIONS AND NOTICES

2.1 PREVAILING REGULATIONS

This solicitation is subject to the DOE Assistance Regulations of Title 10, Code of Federal Regulations, Part 600. This set of regulations may be found in most major libraries or on the World Wide Web at: **http://www.pr.doe.gov/fahome.html**.

2.2 APPLICANT ELIGIBILITY (MAY 2000)

Any non-profit or for-profit organization, university or other institution of higher education, or non-federal agency or entity is eligible to apply, unless otherwise restricted by the Simpson-Craig Amendment. Applicants considering the use of a DOE M&O contractor see Article 2.17. Applicants that are seeking financial assistance under this solicitation, are subject to the eligibility requirements of Section 2306 of the Energy Policy Act of 1992 (EPAct).

2.3 NUMBER AND TYPE OF AWARDS (JAN 2000)

It is anticipated that there will be multiple awards resulting from this solicitation. However, the Government reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in response to this solicitation and will award that number of financial assistance instruments which serves the public purpose and is in the best interest of the Government. The Government intends to use Cooperative Agreement as the type of award instrument(s).

2.4 COST SHARING REQUIREMENTS (DEC 1999)

In accordance with 10 CFR 600.30, the DOE has determined that the minimum cost share for this project is 20%. Cost sharing must meet the requirements of 10 CFR 600.123 and 10 CFR 600.224. Allowable costs for cost sharing shall be in accordance with 10 CFR 600.127 and 10 CFR 600.222.

2.5 AVAILABILITY OF FUNDS (AUG 1999)

Area of Interest	Estimated Funding Per Award [1]
2,5,17	No funds currrently available [2]
1, 3, 4, 6 thru 15	100,000 to 1 million
16	Several million (up to 10 million)

[1] All DOE funding is estimated and subject to availability

[2] DOE will still receive pre-applications in these areas of interest to capture ideas that could be funded if unanticipated funds become available.

2.6 PROJECT PERIOD (AUG 2000)

The maximum allowed project period for awards under this solicitation will be thirty-six (36) months except for Area of Interest 16 for which the maximum period will be sixty (60) months. Awards will have project and budget periods that are specific to the project and funding.

2.7 SOLICITATION SCHEDULE

EVENTS	ANTICIPATED DATES
Evaluation Period One:	
Pre-application Due Date	December 20, 2000
Pre-application Notifications	January 24, 2001
Comprehensive Application Due Date	March 13, 2001
* Selection of Applications	July 2001
* Awards Made	September 2001
Evaluation Period Two:	
Pre-application Due Date	March 30, 2001
Pre-application Notifications	April 25, 2001
Comprehensive Application Due Date	June 12, 2001
* Selection of Applications	October 2001
* Awards Made	December 2001

*** Dates identified are approximate and subject to change based on the number of applications selected and awards to be made.**

2.8 TELEGRAPHIC AND E-MAIL APPLICATIONS (SEPT 2000)

Telegraphic and E-mail applications will NOT be considered. The term "Telegraphic" includes both mailgrams and facsimile submissions.

2.9 LATE APPLICATIONS, AMENDMENTS AND WITHDRAWALS OF APPLICATIONS (AUG 2000)

A pre-application shall be timely if it is received at the location on or before the deadline dates and times specified in Section III, Article 3.2. A comprehensive application shall be timely if it is received at the location on or before the deadline dates and times specified in Section IV, Article 4.2. Amendment of a pre-application or comprehensive application shall be timely if it is received at the location on or before any of the deadline dates and times specified in the amendment.

Applications or amendments of applications may be withdrawn by written notice at any time before award. Written notice includes E-mails and facsimiles. An authorized representative may withdraw applications in person, if the representative's identity is made known and the representative signs a receipt for the application before award. Applications will not be returned unless they are withdrawn in a timely manner.

2.10 CONTENT OF RESULTING AWARD (SEPT 2000)

Any agreement awarded as a result of this solicitation will contain the applicable terms and conditions found in the Model Financial Assistance Agreement located at: **http://www.netl.doe.gov/business/faapiaf/model.pdf**.

Blank areas appearing in the model agreement indicated by "[ ]" will be completed after negotiations.

2.11 APPLICATION PREPARATION COSTS (DEC 1999)

This solicitation does not obligate the Government to pay any costs incurred in the preparation and submission of applications, or in making necessary studies or designs for the preparation thereof or to acquire, or contract for any services.

2.12 COMMITMENT OF PUBLIC FUNDS (AUG 1999)

The Contracting Officer is the only individual who can legally commit the Government to the expenditure of public funds in connection with the proposed award. Any other commitment, either explicit or implied, is invalid.

2.14 FALSE STATEMENTS (AUG 1999)

Applications must set forth full, accurate, and complete information as required by this solicitation. The penalty for making false statements in applications is prescribed in 18 U.S.C. 1001.

2.15 QUESTIONS/AMENDMENTS TO SOLICITATION

All requests for explanation or interpretation of any part of the solicitation shall be submitted to the Contract Specialist via E-mail or in writing. The Government reserves the right not to respond to questions submitted by telephone or in person at any time.

The only method by which any term of this solicitation may be amended is by an express, formal amendment generated by the issuing office. No other communication, whether written or oral will amend or supersede the terms of this solicitation.

Amendments to the solicitation will be posted on NETL's website **http://www.netl.doe.gov/business/solicit/**. Applicants are encouraged to periodically check the NETL Homepage to ascertain the status of any amendments as hard copies will not be distributed.

2.16 CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER (CFDA) (AUG 1999)

CFDA No. 81.089 - Fossil Energy Research and Development.

2.17 PARTICIPATION BY DEPARTMENT OF ENERGY (DOE) MANAGEMENT AND OPERATIONS (M&O) CONTRACTORS (AUG 2000)

Applications submitted by, or on behalf of: (1) another Federal agency; (2) a Federally Funded Research and Development Center sponsored by another Federal agency; or (3) a Department of Energy (DOE) Management and Operating (M&O) contractor will not be eligible for an award under this solicitation. However, an application that includes performance of a portion of the work by a DOE M&O contractor will be evaluated and may be considered for award, provided the proposed use of any such entity is specifically authorized in writing by the responsible DOE Contracting Officer or authorized designee and the applicant provides the additional information identified in Section IV - STEP 2, COMPREHENSIVE APPLICATION. The responsible DOE Contracting Officer must determine that performance by the M&O contractor: 1) is consistent with or complementary to DOE missions and the missions of the facility to which the work is to be assigned; 2) will not adversely impact execution of assigned programs of the facility; 3) will not place the facility in direct competition with the domestic private sector; and 4) will not create a detrimental future burden on DOE resources.

If a project which includes M&O participation is approved for funding, DOE intends to make an award to the applicant for its portion of the effort and to provide direct funding for the M&O's portion of the effort under the existing DOE M&O contract. The M&O contractor's work scope therefore will not be accomplished through a contract with a recipient as defined in 10 CFR Part 600.3. However, the recipient will be the responsible authority, without recourse to DOE, regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to disputes and claims, arising out of any agreement between the applicant and the M&O contractor.

If a recipient uses an M&O contractor to perform a portion of the work, the recipient's cost sharing requirement would be based on the total cost of the project, including both the recipient's and the M&O's portions of the effort.

2.18 DETERMINATION OF RESPONSIBILITY (AUG 1999)

DOE will evaluate the potential Recipient's responsibility before award. Responsibility determinations are focused on the Recipient's capability to manage and account for the funds, property and other assets provided to perform satisfactorily under the terms of the award. If a potential Recipient is determined to not be in compliance or cannot or will not comply with generally applicable requirements (see 10 CFR Part 600, Appendix A), the contracting officer will find the Recipient not responsible and may either disapprove the application or use special restrictive conditions as a term of award.

2.19 TREATMENT OF PROPRIETARY INFORMATION (AUG 1999)

An application may include technical data and other data, including trade secrets and/or privileged or confidential commercial or financial information, which the applicant does not want disclosed to the public or used by the Government for any purpose other than application evaluation. To protect such data, the applicant should specifically identify each page including each line or paragraph thereof containing the data to be protected and mark the cover sheet of the application with the following Notice as well as referring to the Notice on each page to which the Notice applies:

NOTICE OF RESTRICTION ON DISCLOSURE AND USE OF DATA

The data contained in pages [ ] of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data therein to the extent provided in the award. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the applicant.

DOE shall not refuse to consider an application solely on the basis that the application is restrictively marked.

2.20 EVALUATION PERSONNEL (AUG 2000)

Applications will be evaluated in accordance with the criteria set forth in the solicitation. In conducting this evaluation, the Government may utilize assistance and advice from qualified personnel from other Federal Agencies, DOE Contractors, universities and industry. **APPLICANTS NOT WISHING TO HAVE THEIR APPLICATION EVALUATED BY NONFEDERAL PERSONNEL SHALL INDICATE THEIR "NON-CONSENT" IN VOLUME I**. Applicants are further advised that DOE may be unable to consider an application withholding such consent.

When using personnel from other Federal agencies, DOE contractors, or other consultants to DOE in the evaluation of applications, DOE will obtain assurances from all evaluators that DOE's commitments are met relating to the proprietary nature of any application information.

2.21 APPLICATION CLARIFICATION (JULY 1999)

DOE reserves the right to require applications to be clarified or supplemented to the extent considered necessary either through additional written submissions or oral presentations.

2.22 APPLICATION ACCEPTANCE PERIOD (AUG 1999)

The minimum application acceptance period shall be 180 calendar days after the deadline(s) for receipt of applications.

2.23 AWARD WITHOUT DISCUSSIONS (AUG 2000)

Notice is given that award may be made after few or no exchanges, discussions or negotiations. Therefore, all applicants are advised to submit their most favorable application to the Government. The Government reserves the right, without qualification, to reject any or all applications received in response to this solicitation and to select any application, in whole or in part, as a basis for negotiation and or award.

2.24 SIMPSON-CRAIG AMENDMENT (AUG 1999)

Organizations which are described in section 501(c)(4) of the Internal Revenue Code of 1986 and engage in lobbying activities after December 31, 1995, shall not be eligible for the receipt of Federal funds constituting an award, grant, or loan. Section 501(c)(4) of the Internal Revenue Code of 1986 covers:

"Civic leagues or organizations not organized for profit but operated exclusively for the promotion of social welfare, or local associations of employees, the membership of which is limited to the employees of a designated person or persons in a particular municipality, and the net earnings of which are devoted exclusively to charitable, educational or recreational purposes."

Lobbying activities are defined broadly to include, among other things, contacts on behalf of an organization with specified employees of the Executive Branch and Congress with regard to Federal legislative, regulatory and program administrative matters.

2.25 PRESUBMISSION REVIEW AND CLEARANCES (AUG 1999)

Presubmission review under Executive Order 12372, "Intergovernmental Review of Federal Programs" is not required.

2.26 LOANS NOT AVAILABLE (JULY 1999)

Loans are not available under the DOE Minority Economic Impact (MEI) loan program, 10 CFR Part 800, to finance the cost of preparing a financial assistance application.

2.27 NOTICE TO UNSUCCESSFUL APPLICANTS (AUG 2000)

Each unsuccessful applicant will be offered the opportunity for an explanation as to why the application was not selected. Written notice will be provided to unsuccessful applicants after selection in accordance with 10 CFR 600.19. Information about selected projects will be made publicly available.

2.28 ADDITIONAL ELIGIBILITY REQUIREMENTS OF THE ENERGY POLICY ACT OF 1992 (JULY 1999)

Awards under this solicitation also are subject to the eligibility requirements stated in Section 2306 of the Energy Policy Act of 1992 (EPAct). An applicant private sector firm shall be eligible to receive financial assistance under this section only if it is a United States-owned company, or the firm is incorporated in the United States and has a parent company which is incorporated in a country which affords to United States-owned companies: (1) opportunities comparable to those afforded to any other company to participate in any joint venture similar to the one described in this solicitation; and (2) adequate and effective protection for United States companies' intellectual property rights.

In addition, the applicant must show that the project, as a whole, is in the economic interest of the United States. To fulfill this requirement, the applicant must consider the contributions of all participants in the project, including any contractors or suppliers that the applicant has named and relied upon in its application. This can be evidenced by: (1) investment in the United States in research, development, and manufacturing, such as the manufacture of major components or subassemblies in the United States; (2) significant contributions to employment in the United States; (3) agreement with respect to any technology arising from assistance provided under this solicitation to promote the manufacture within the United States of products resulting from that technology, taking into account the goals of promoting the competitiveness of United States industry, and to procure parts and materials from competitive suppliers.
All applicants shall complete documentation providing a certification of eligibility under Section 2306 of the EPAct. Based on the information received, a determination by DOE that the EPAct eligibility requirements are met should be made prior to award of an agreement.

2.29 NATIONAL ENVIRONMENTAL POLICY ACT STRATEGY (DEC 1999)

The National Environmental Policy Act of 1969 (NEPA) establishes a national policy to ensure that consideration is given to environmental values and factors in Federal planning and decision making. The Department of Energy's policy is to comply fully with the letter and spirit of NEPA. To ensure that environmental factors are considered in the decision making process and to promote environmentally responsible decisions, DOE incorporates NEPA requirements early in the planning process for proposed actions. Consistent with Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508) and DOE NEPA regulations (10 CFR Part 1021), an overall strategy for compliance with NEPA has been developed. This includes performing project-specific environmental reviews under 10 CFR 1021.216 of environmental issues pertinent to each proposed project before projects are selected, followed by site-specific environmental reviews under NEPA of each project after DOE selection.

No action taken by DOE with regard to any application prior to the completion of the site-specific analysis, including project selection or award, shall be a final decision for purposes of compliance with NEPA.

2.30 PRE-SELECTION PROJECT-SPECIFIC ENVIRONMENTAL (DEC 1999)

For Applications that undergo comprehensive evaluation, DOE will review under 10 CFR 1021.216, project-specific environmental information supplied by the applicant as part of Volume I, Business and Financial application. The environmental information provided by the applicant is independently evaluated by DOE and documented in the form of an environmental critique, which may also include supplemental information developed by DOE. Subsequently, DOE prepares a publicly available environmental synopsis to document the consideration given to environmental factors and to record that the relevant environmental consequences of reasonable alternatives have been evaluated in the selection process.

2.31 POST-SELECTION ENVIRONMENTAL REVIEW (DEC 1999)

Soon after selection, which shall be contingent as specified in 10 CFR 1021.216(i), depending on the information necessary to satisfy NEPA, applicants may be requested to provide additional environmental information which is more detailed than that provided on the Environmental Questionnaire of this solicitation. This detailed site-and project-specific information may be used as the basis for site-specific NEPA documents prepared by DOE for each selected project. Such NEPA documents shall be prepared, considered, and published by DOE in full conformance with the requirements of the CEQ regulation and DOE NEPA regulations. DOE must complete its appropriate NEPA process before a go/no go decision and before a recipient may proceed with detailed design under the award.

2.32 POST-AWARD ENVIRONMENTAL MONITORING (DEC 1999)

Each resulting award will specify the monitoring and reporting requirements necessary to ensure compliance with applicable environmental regulations, and permits obtained from Federal, state and local government agencies and DOE NEPA regulations.

2.33 52.227-6 ROYALTY INFORMATION. (APR 1984)

(a) Cost or charges for royalties. When the response to this solicitation contains costs or charges for royalties totaling more than $250, the following information shall be included in the response relating to each separate item of royalty or license fee:

(1) Name and address of licensor.

(2) Date of license agreement.

(3) Patent numbers, patent application serial numbers, or other basis on which the royalty is payable.

(4) Brief description, including any part or model numbers of each contract item or component on which the royalty is payable.

(5) Percentage or dollar rate of royalty per unit.

(6) Unit price of contract item.

(7) Number of units.

(8) Total dollar amount of royalties.

(b) Copies of current licenses. In addition, if specifically requested by the Contracting Officer before execution of the contract, the offeror shall furnish a copy of the current license agreement and an identification of applicable claims of specific patents.

2.34 952.227-84 NOTICE OF RIGHT TO REQUEST PATENT WAIVER. (FEB 1998)

Offerors have the right to request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of the contract that may be awarded as a result of this solicitation, in advance of or within 30 days after the effective date of contracting. Even where such advance waiver is not requested or the request is denied, the contractor will have a continuing right under the contract to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the contract. Domestic small businesses and domestic nonprofit organizations normally will receive the patent rights clause at DEAR 952.227-11 which permits the contractor to retain title to such inventions, except under contracts for management or operation of a Government-owned research and development facility or under contracts involving exceptional circumstances or intelligence activities. Therefore, small businesses and nonprofit organizations normally need not request a waiver. See the patent rights clause in the draft contract in this solicitation. See DOE's patent waiver regulations at 10 CFR part 784.

SECTION III - STEP 1, PRE-APPLICATION

3.1 PRE-APPLICATION PREPARATION INSTRUCTIONS -- GENERAL

Pre-applications shall be prepared in accordance with the instructions set forth herein to provide a standard basis for evaluation and to ensure that each pre-application is uniform in regard to format and sequence. To aid in evaluation, pre-applications shall be neat, clearly and concisely written, and follow the instructions contained herein.

Pre-applications will be evaluated against the pre-application requirements set forth below. It is anticipated that the results of the evaluation will be made available to the pre-applicants in January 2001. Only those offerors whose pre-applications are selected by DOE will be afforded the opportunity to proceed to Step 2, submittal of a Comprehensive Application.

Applicants must select and target only one (1) Area of Interest per application. Should the offeror propose different technologies/technical approaches for a single Area of Interest, a separate application must be submitted. Background information and objectives for each Area of Interest are detailed in Attachment A. If it is determined during the initial evaluation that a pre-application should be considered under a different Area of Interest within this solicitation, the Government reserves the right to evaluate the pre-application under that area.

3.2 TIME, DATE AND PLACE PRE-APPLICATIONS ARE DUE - MULTIPLE DUE DATES (DEC 1999)

Pre-applications shall be submitted in paper and electronic media in sealed envelopes or packages addressed to the issuing office and point of contact specified on the Program Solicitation Cover Page.

PRE-APPLICATIONS MUST BE RECEIVED AT THE FOLLOWING MAILING ADDRESS NO LATER THAN 2:00 P.M. EST FOR EACH OF THE PRE-APPLICATION DUE DATES SPECIFIED BELOW:

EVALUATION PERIOD	PRE-APPLICATION DUE DATE
1	December 20, 2000
2	March 30, 2001

PRE-APPLICATIONS THAT ARE NOT RECEIVED BY THE FIRST DUE DATE WILL NOT BE RETAINED FOR THE SECOND EVALUATION PERIOD. OFFEROR'S MUST RESUBMIT A PRE-APPLICATION FOR THE SECOND EVALUATION PERIOD.

External Marking of Pre-applications -- Pre-applications shall be marked with the following information: (1) Address of Applicant; (2) Solicitation Number; (3)Due Time and Date of Pre-Applications; and (4)Point of Contact at Issuing Office.

3.3 PRE-APPLICATION ARRANGEMENT

The pre-application shall consist of a total of six (6) pages and shall be arranged as follows:

Sections	Originals	Copies	Electronic	Page Length Not to Exceed
Pre-application Cover Page	1	2	1	1 page
Technical Discussion	1	2	1	5 pages

The pre-application identified as the original shall contain original signatures. The electronic version of the technical discussion shall be submitted in Word 97, WordPerfect 6.1 or Adobe Acrobat Portable Document Format (PDF). Earlier versions of Word or WordPerfect are acceptable. Acceptable media are 3.5" disk, CD-ROM and 100 MB ZIP disk.

Format and Content

PRE-APPLICATION COVER PAGE -- **Included as Attachment B**. Offerors are to identify the Area of Interest, Project Title, Name and Address of Proposer, Point of Contact, Telephone and E-mail of Proposer, and identify if proprietary or confidential information is contained in the pre-application. The offeror is to provide the period of performance and the estimated total project costs; identifying both the DOE share and the applicant's share of the total proposed project cost.

TECHNICAL DISCUSSION -- The Technical Discussion shall not exceed five (5) pages. **Pages in excess of the page limitation will be removed from the pre-application, discarded prior to evaluation, and will not be evaluated.** The proposed text shall be double spaced, using 12 point font, 1" margins, and when printed will fit on size 8 1/2-inch by 11-inch paper. Illustrations shall be legible and no longer than 11-inch by 17-inch foldouts, as appropriate for the subject matter. Each 11-inch by 17-inch foldouts is considered two pages when determining the number of pages. Pages shall be sequentially numbered. Except as otherwise noted in the solicitation, the page guidelines previously set forth constitute a limitation on the total amount of material that may be submitted for evaluation. No material may be incorporated in the pre-application by reference as a means to circumvent the page limitation.

The technical discussion section of the pre-application shall address each of the technical evaluation criteria in Provision 3.3, and provide the technical information as follows:

1. Scientific and Technical Merit

The offeror shall provide a discussion which clearly delineates the scientific and technical merit of the technology to be developed. The application should address the following:

(1) How the proposed work relates to the "Overall Program Goals" and "Research Objectives" (if applicable) for this solicitation in the targeted Area of Interest.
(2) How the proposed work will result in improvements over existing technologies.
(3) Potential of a scientific or engineering breakthrough.
(4) The scientific and technical basis and merit of the proposed work.
(5) Anticipated benefits of the proposed work, such as performance improvements, cost savings, and environmental benefits.

2. Technical Approach and Understanding

The offeror shall provide a summary of the project objectives and their technical approach to accomplish these objectives. The offeror shall provide a project schedule, identifying major milestones.

3.4 EVALUATION AND SELECTION OF PRE-APPLICATIONS

The Technical Discussion of the pre-applications submitted in response to this solicitation will be evaluated and scored in accordance with the evaluation criteria listed below. The weighting factors for each of the criteria is identified below and will be applied to obtain a final evaluation rating for each pre-application.

1. Scientific and Technical Merit (70%)

Degree to which the proposed technology or methodology represents an important advancement toward achieving the "Overall Program Goals" or "Research Objectives" (if applicable) for this Solicitation in the targeted Area of Interest. The degree to which the proposed work identifies and/or makes progress on new concepts, thereby increasing the likelihood of a new successful technology. The degree to which the proposed work is based on sound scientific and engineering principles. Anticipated benefits of the proposed work.

2. Technical Approach and Understanding (30%)

Adequacy and feasibility of the offeror's technical approach. Appropriateness, rationale, and completeness of the summary of project objectives. Adequacy of the proposed project schedule.

3.5 BASIS OF SELECTION OF PRE-APPLICATIONS

In determining which pre-applications to select for submission as a comprehensive application, DOE will consider the relative and absolute point scores for each pre-application and the desirability of the proposed project to contribute (individually and collectively) to achieving the overall goals and objectives for each Area of Interest.

DOE will select top-ranked pre-applications in each Area of Interest. Program Policy Factors identified in Section V of this solicitation, will not be applied to pre-applications.

SECTION IV - STEP 2, COMPREHENSIVE APPLICATION

STOP! THIS SECTION IS ONLY APPLICABLE TO OFFERORS WHOSE PRE-APPLICATION WAS SELECTED BY DOE FOR SUBMITTAL AS A COMPREHENSIVE APPLICATION

4.1 APPLICATION PREPARATION INSTRUCTIONS -- GENERAL (SEPT 2000)

The application shall be prepared as set forth herein to provide a standard basis for evaluation and to insure that each application will be uniform as to format and sequence. These instructions are not to be included in your application.

Applications shall be prepared in accordance with the instructions found in this section. To aid in evaluation, applications shall be clearly and concisely written as well as being neat, indexed (cross-indexed as appropriate) and logically assembled. All pages of each volume shall be appropriately numbered and identified with the name of the applicant, the date and the solicitation number to the extent practicable. Each volume is a stand alone document, therefore, some information provided may need to be included in all volumes.

Each application should clearly demonstrate the applicant's capability, knowledge, and experience in regard to the requirements described herein. Failure to respond or follow the instructions regarding the organization and content of the application may result in the application being deemed unacceptable.

During the review of a complete application, DOE may request the submission of additional information if the information is essential to evaluate the application.

4.2 TIME, DATE AND PLACE COMPREHENSIVE APPLICATIONS ARE DUE - MULTIPLE DUE DATES (DEC 1999)

Applications shall be submitted in paper media in sealed envelopes or packages addressed to the office and point of contact specified below:

APPLICATIONS MUST BE RECEIVED AT THE FOLLOWING MAILING ADDRESS NO LATER THAN 2:00 P.M. EST FOR EACH OF THE APPLICATION DUE DATES SPECIFIED BELOW:

EVALUATION PERIOD	APPLICATION DUE DATE
1	March 13, 2001
2	June 12, 2001

APPLICATIONS THAT ARE NOT RECEIVED BY THE FIRST DUE DATE WILL NOT BE RETAINED FOR THE SECOND EVALUATION PERIOD. OFFEROR'S MUST RESUBMIT A PRE-APPLICATION FOR THE SECOND EVALUATION PERIOD.

U. S. Department of Energy
National Energy Technology Laboratory
P. O. Box 880
3610 Collins Ferry Road
Morgantown, WV 26507-0880
Point of Contact : Lisa A. Kuzniar,
Telephone Number: (304) 285-4242
Fax Number: (304) 285-4683
E-Mail Address: lkuzni@netl.doe.gov

EXTERNAL MARKING OF APPLICATIONS

Applications shall be marked with the following information:

(1) Address of Proposer
(2) Solicitation Number
(3) Due Time and Date of Applications
(4) Point of Contact at Issuing Office

4.3 UNNECESSARILY ELABORATE APPLICATIONS (JULY 1999)

Unnecessarily elaborate applications beyond those sufficient to present a complete and effective response to this solicitation are not desired. Elaborate art work and expensive visual presentation are neither necessary nor wanted.

4.4 OVERALL ARRANGEMENT OF APPLICATION (SEPT 2000)

The overall application shall consist of two (2) physically separated volumes, individually entitled as stated below. Submit the required number of each application volume shown in the matrix below.

Volume	Originals	Copies	Electronic*
I - Business and Financial Application	1	2	0
II - Technical Application	1	4	1

*Applicants are required to submit an electronic version of Volume II, Technical Application. The electronic version of the technical application shall be submitted in Word 97, WordPerfect 6.1 or Adobe Acrobat Portable Document Format (PDF). Earlier versions of Word or WordPerfect are acceptable. Acceptable media are 3.5" disk, CD-ROM and 100 MB ZIP disk.

4.5 VOLUME I -- BUSINESS AND FINANCIAL APPLICATION PREPARATION INSTRUCTIONS (JULY 2000)

Volume I consists of an application coversheet, application forms, assurances, budget pages, environmental questionnaire, exceptions and deviations to the model award, and any other business and financial information.

The application identified as the original shall contain all original signatures of all documents requiring signatures by the offeror. Use of reproductions of signed originals is authorized in all other copies of the application.

ALL FORMS AND INSTRUCTIONS NEEDED FOR PREPARATION OF VOLUME I ARE FOUND ON THE NETL HOMEPAGE AT: http://www.netl.doe.gov/business/forms/forms.html. PLEASE NOTE THAT ALL FORMS WERE DEVELOPED USING WORDPERFECT 6.1 AND FORMATTED FOR PRINTING USING A HP LASERJET IIISI PRINTER. INSTRUCTIONS FOR COMPLETION OF THE FORMS ARE CONTAINED ON THE BACK OF EACH FORM. QUESTIONS ON COMPLETION OF THE FORMS SHOULD BE ADDRESSED TO THE CONTRACT SPECIALIST.

Format and Content.

Volume I shall include the following documents (in the order listed):

1. VOLUME I BUSINESS AND FINANCIAL APPLICATION COVER PAGE - **Included As Attachment C**

2. APPLICATION FOR FEDERAL ASSISTANCE Standard Form 424# -- **Form # SF424**

3. FINANCIAL ASSISTANCE ASSURANCE PACKAGE -- **Form #: assure.fa**

4. BUDGET PAGE(S)

The applicant must provide detailed budget information on one or more of the following budget forms. Supporting cost data shall be submitted as indicated by the instructions on the reverse of the budget form or the supporting cost detail requirement in Paragraph 5 of this clauses. The DOE Form 4620.1 and the ER F 4620.1A are generally used by educational institutions and the DOE Form 4600.4 and SF424a are generally used by other than educational institutions. The form submitted shall be at the discretion of the applicant.

Failure to provide the detailed cost information as described in the instructions will result in an incomplete package. If a minimum cost share is required by this solicitation, the applicant shall stipulate in the application the source and amount of cost sharing and the value of third party in-kind contributions proposed to meet the requirement.

a. Federal Assistance Budget Information -- DOE F 4600.4 -- **Form #D4600.4**
b. Budget Page DOE F 4620.1 -- **Form # D4620.1**
c. Grant Application Project Period Summary ER F 4620.1A -- **Form #ERF4620**
d. Budget Information -Non-Construction Programs -- SF424a -- **Form #SF424a**

5. SUPPORTING COST DETAIL REQUIREMENTS

The following cost detail is required for the proposed cost elements. Additionally, teaming members and subcontractors are also required to submit the information requested below with their budgets.

Personnel -- In support of the proposed personnel costs, provide a supplemental schedule that identifies the labor hours, labor rates, and cost by labor classification for each budget year. Also indicate the basis of the labor classification, number of hours, and labor rates. An example of the basis for the labor classification and number of hours could be past experience, engineering estimate, etc. An example of the basis for the labor rates could be actual rates for the individuals who will perform the work or an average labor rate for the labor classification or a departmental average rate.

Fringe Benefits -- Provide the method used to calculate the proposed rate amount. If a fringe benefit has been negotiated with, or approved by, a Federal Government agency, provide a copy of the agreement. If no rate agreement exists, provide the method used to calculate the proposed amount.

Travel -- For each proposed trip, provide the purpose, number of travelers, travel origin and destination, number of days, and a breakdown of costs for airfare, lodging, meals and incidentals. The basis for the airfare, lodging, meals and incidentals must be provided, such as past trips, current quotations, Federal Travel Regulations, etc.

Equipment -- Provide an itemized list of each piece of equipment, individual costs, and the basis for estimating the cost, for example, vendor quotes, catalog prices, prior invoices, etc.

Supplies -- Provide an itemized list of supplies, individual costs, and the basis for estimating the cost, for example, vendor quotes, catalog prices, prior invoices, etc.

Contractual -- Include in this category the cost of consultants and subcontractors in the same level of detail as the applicant's costs.

Consultants -- Provide the hourly or daily rate along with the basis for the rate. Furnish resumes or similar information regarding qualifications or experience. Provide at least two invoices reflecting hourly or daily rates charged to customers other than the Government. A statement signed by the consultant certifying his or her availability and salary must be provided. If travel or incidental expenses are to be charged, give the basis for these costs.

Subcontractors -- Provide the total cost per year for each subcontractor. Detail of subcontractor's costs should appear in the subcontractor's budget explanation.

Construction -- Provide detail of construction costs, if applicable.

Other Direct Costs -- Provide an itemized list with costs for any other item proposed as a direct cost and state the basis for each proposed item.

Indirect Costs -- If indirect rates have been negotiated with or approved by a Federal Government agency, please provide a copy of the latest rate agreement. If you do not have a current rate agreement, submit an indirect cost rate proposal which includes the major base and pool expense groupings by line item and dollar amount. In either case, provide a breakdown of the proposed indirect costs for each of our accounting periods included in the proposal. Identify the rate and allocation base for each indirect cost, such as Overhead, General and Administrative, Facilities Capital Cost of Money, etc.

Cost Sharing - A minimum of twenty (20) percent cost sharing is required for this solicitation. The proposed cost share must be presented in the same level of detail as the cost to be reimbursed by the Government. Your cost application must show the breakout between Federal and non-Federal sources. The non-Federal share may include cash, personnel, services, equipment, and other resources.

All cost sharing or matching contributions, including cash and third party contributions shall meet the following criteria:

(1) are verifiable from the recipient's records,
(2) are necessary and reasonable for proper and efficient accomplishment of project or program objectives,
(3) are not included as contributions for any other federally-assisted project or program,
(4) are allowable and allocable under the applicable cost principles,
(5) are not paid by the Federal Government under another award, except where authorized by Federal statute to be used for cost sharing or matching.

Detailed below is a list of project costs not allowed for cost-sharing purposes:

(1) DOE shall not accept valuation for property sold, transferred exchanged, or otherwise manipulated to acquire a new basis for depreciation purposes or to establish a rental value in circumstances which would amount to a transaction for the mere purpose of meeting the cost share requirements of this solicitation.
(2) Property which has been fully depreciated will not receive any cost-sharing value except to the extent that it has been in continuous use by the applicant during the entire previous year.
(3) Existing facilities, equipment, and supplies, or previously expended research or development funds are not cost-sharing for the purposes of this solicitation, except as amortized, depreciated, or expensed in normal business practice.
(4) Patents, proprietary data, or prior work will not be valued in determining the offer's cost participation.
(5) Allowable costs which are absorbed by the applicant as its share of cost participation may not be charged directly or indirectly or may not have been charged directly or indirectly in the past to the Federal Government under other contracts, agreements, or grants. Additionally, other appropriated federal funds are not cost-sharing for the purposes of this solicitation.

6. ENVIRONMENTAL QUESTIONNAIRE -- **Form # nepasol**

7. ACKNOWLEDGMENT OF AMENDMENTS

The applicant shall specifically indicate their acknowledgment and receipt of the amendment(s) posted on the NETL website at **http://www.netl.doe.gov/business/solicit/** by signing the amendment and including it in Volume I or stating the receipt of the amendment in the text of Volume I.

8. ADDITIONAL APPLICATION SUBMISSION REQUIREMENTS FOR FFRDC'S, DOE M&O CONTRACTORS OR LABORATORY ENTITIES

If your application includes work to be performed by an M&O contractor, the following additional information is required:

1. Application and Field Work Proposal: The application must include a SF 424, Application for Federal Assistance, and budget page for the applicant's portion of the project and a Field Work Proposal (See DOE Order 412.1 Work Authorization System) for the M&O portion of the project.

The application must also describe: 1) the portion of the project that will be conducted by the applicant and the portion that will be conducted by the M&O contractor and 2) the managerial arrangement between the applicant and the M&O contractor. The amount of work to be performed by the M&O contractors in the aggregate may not be greater than the aggregate amount of work to be performed by all other participants in the project, unless a higher level of participation is determined to be in the best interest of the government in advancing the objectives of the solicitation. DOE will review the application to determine that it meets this criteria and reserves the right to reject any application that fails to do so.

2. Workscope: The application must provide a scope of work for the effort to be performed by the applicant and a separate scope of work for the effort to be performed by the M&O contractor.

3. Authorization from the DOE Contracting Officer. The applicant must submit a document from the DOE Contracting Officer or authorized designee stating that the M&O contractor is authorized to participate in the proposed work effort (See Section II - Conditions and Notices).

9. SUMMARY OF EXCEPTIONS AND DEVIATIONS

The offeror shall identify and explain any exceptions or deviations taken or conditional assumptions made with respect to Volume I, Volume II and/or the model agreement.

Any exceptions taken must contain sufficient amplification and justification to permit evaluation. The benefit to the Government shall be explained for each exception taken. Such exceptions will not, of themselves, automatically cause an application to be termed unacceptable. A large number of exceptions, or one or more significant exceptions not providing benefit to the Government, however, may result in rejection of your application(s) as unacceptable.

4.6 VOLUME II-- TECHNICAL APPLICATION PREPARATION INSTRUCTIONS (SEPT 2000)

GENERAL

The technical application will consist of the applicant's outline addressing the technical and management aspects of the assistance action, the applicant's capabilities and what the applicant will do to satisfy the requirements of the solicitation. Since the technical information contained in this section will be evaluated to determine such matters as understanding of the work to be performed, technical approach, and potential for completing the desired work, it should be specific and complete in every detail. The application should be practical and be prepared simply and economically, providing a straightforward, concise delineation of what it is the applicant will do to satisfy the requirements of the solicitation.

In order that the Technical Application may be evaluated strictly on the merit of the material submitted, no cost information is to be included in the Technical Application. Where estimated man-hours will provide clarity, they shall be quoted in man-hour figures only, with no indication as to the cost of these man-hours.

FORMAT AND CONTENT

The Technical Application shall be a stand-alone document. DOE will not refer to the offeror's pre-application for introductory or supplemental information when evaluating the Technical Application. The offeror's Technical Application must address substantially the same work and work plan as presented in the approved pre-application. The Technical Application must expand and clarify the work presented in the approved pre-application. Any substantive change from the work and work plan presented in the pre-application will result in the Technical Application being rejected and not evaluated further.

The Technical Application shall not exceed **50 pages**. Sections A through D shall not exceed **35 pages**. Section E shall not exceed **15 pages**. **Pages in excess of the specified page limitations will be removed from the application, discarded prior to evaluation, and will not be evaluated.** The Technical Application shall contain only single-sided pages.

The proposed text shall be double spaced, using 12 point font, 1" margins, and when printed will fit on size 8 1/2-inch by 11-inch paper. Illustrations shall be legible and no longer than 11-inch by 17-inch foldouts, as appropriate for the subject matter. Each 11-inch by 17-inch foldouts is considered two pages when determining the number of pages. Pages shall be sequentially numbered. Except as otherwise noted in the solicitation, the page guidelines previously set forth constitute a limitation on the total amount of material that may be submitted for evaluation. No material may be incorporated in any application by reference as a means to circumvent the page limitation.

All measurements described in the application should be expressed in the metric (SI) system with the customary unit conversion in parentheses. Additionally, applicants are hereby notified that any instrumentation associated with tasks which will be performed should be expressed in the SI system and all technical reporting will want information in the SI system.

Volume II, Technical Application, shall include the following components:

A. Cover Page -- **included as Attachment D**
B. Table of Contents
C. Public Abstract
D. Technical Discussion
E. Appendices
   a. Technical Exceptions and Deviations
   b. Resumes
   c. Letters of Commitment (If Applicable)
   d. Additional Pertinent Publications (If Any)

PUBLIC ABSTRACT

This section shall contain a public abstract of not more than one (1) page clearly stating the objectives of the proposed research, the title of the project, methodology, and sponsoring organization (s). It is a stand-alone document. The abstract may be released to the public by DOE in whole or in part at any time. It is, therefore, required that it shall not contain proprietary data or confidential business information.

TECHNICAL DISCUSSION

In order to produce a comprehensive application for this solicitation, the "Technical Discussion" section of the technical application should address each of the Technical Evaluation criteria contained in Section V, and at a minimum cover the factors listed below.

1. Scientific and Technical Merit

The offeror shall provide a discussion which clearly delineates the scientific and technical merit of the technology to be developed. The application should address the following:

(1) How the proposed work relates to the "Overall Program Goals" and "Research Objectives" (if applicable) for this solicitation in the targeted Area of Interest.
(2) How the proposed work will result in improvements over existing technologies.
(3) Potential of a scientific or engineering breakthrough.
(4) The scientific and technical basis and merit of the proposed work.
(5) Anticipated benefits of the proposed work, such as performance improvements, cost savings, and environmental benefits.

2. Technical Approach and Understanding

The offeror shall provide a clear description of the project objectives and their technical approach to accomplish these objectives. If a multi-phase program is envisioned, the offeror should define the various phases and the criteria for determining successful completion of each phase before the effort advances to subsequent phases. The application should include the following:

(1) Statement of Project Objective(s). Refer to Provision 4.8 for format.
(2) Project Network Diagram showing task dependencies, the critical path and how the project tasks flow from beginning to end.
(3) Project schedule identifying major milestones.
(4) Staffing Plan which identifies how planned resources (including key personnel, subcontractors and consultants) would be assigned to the project. The Staffing Plan should include labor categories and hours required for each task.

(5) Discussion of the travel required to perform the proposed work.

3. Technical and Management Capabilities

The offeror shall provide a discussion which clearly delineates their technical and management capabilities for performing the proposed work. The application should include the following:

(1) Discussion of the credentials, capabilities, and experience of key personnel. Include resumes in the Appendix.
(2) Discussion of relevant corporate experience of the offeror and participating organizations in managing projects of similar size, type and complexity. Discuss project management experience as well as technical experience.
(3) Discussion of the overall project organization identifying roles and responsibilities of all participating organizations, including subcontractors.
(4) Description of the type, size, quality, availability, and appropriateness of the facilities and equipment to perform the proposed work.

4.7 TECHNICAL EXCEPTIONS AND DEVIATIONS

This section shall identify and explain any exceptions or deviations taken or conditional assumptions made with respect to the technical requirements of the solicitation.

Any exceptions taken must contain sufficient amplification and justification to permit evaluation. All benefits to the Government shall be explained for each exception taken. Such exceptions will not, of themselves, automatically cause an application to be termed unacceptable. However, a large number of exceptions, or one or more significant exceptions not providing benefit to the Government may result in rejection of the application(s) as unacceptable.

4.8 STATEMENT OF PROJECT OBJECTIVES INSTRUCTIONS (DEC 1999)

The Statement of Project Objectives (SOPO) must contain a clear, concise description of all activities to be completed during project performance and follow the format below.

TITLE OF WORK TO BE PERFORMED

A. OBJECTIVES

Include one paragraph on the overall objective(s) of the work.

B. SCOPE OF WORK

This section should not exceed one-half page and should summarize the effort and approach to achieve the objective(s) of the work.

C. TASKS TO BE PERFORMED

This section provides a brief summary of the planned approach to this project.

Task 1.0 (Title)

(Description)

Subtask 1.1 (Optional)

(Description)

Task 2.0 - (Title)

Task 3.0 - (Title)

D. DELIVERABLES

The periodic, topical, and final reports shall be submitted in accordance with the "Federal Assistance Reporting Checklist" and the instructions accompanying the checklist, contained in the Model Financial Assistance Agreement located at the NETL website **http://www.netl.doe.gov/business/faapiaf/model.pdf**. In addition to the standard reports identified in the Model Financial Assistance Agreement, the following reports will be required:

1) Federal Assistance Management Summary Report -- two (2) copies submitted on a quarterly basis; and
2) Federal Assistance Program/Project Status Report -- two (2) copies submitted on a quarterly basis.

The Recipient shall provide a list of deliverables other than those identified on the "Federal Assistance Reporting Checklist" that will be delivered. These reports shall also be identified within the text of the SOPO.

1. Task 1.1 - (Report Description)
2. Task 2.2 - (Report Description)

E. BRIEFINGS/TECHNICAL PRESENTATIONS

At a minimum, the recipient shall include the following briefings/technical presentations in its proposal. Any additional trips shall also be detailed and justified.

1. The Recipient shall prepare a minimum of one briefing for presentation to the COR at the COR's facility located in Pittsburgh, PA or Morgantown, WV per budget year. Briefings shall be given by the recipient to explain the plans, progress, and results of the technical effort.

SECTION V - STEP 2, EVALUATION AND SELECTION OF COMPREHENSIVE APPLICATION

5.1 INTRODUCTION (MAY 2000)

This section contains the evaluation approach as well as the individual criteria to be used in the evaluation of applications.

5.2 GENERAL (JULY 1999)

It is the policy of DOE that any financial assistance be awarded through a merit-based selection process which means a thorough, consistent and independent examination of applications based on pre-established criteria by persons knowledgeable in the field of the proposed project.

5.3 PRELIMINARY EVALUATION OF COMPREHENSIVE APPLICATION (SEPT 2000)

Prior to a comprehensive evaluation, applications will undergo an initial review to determine whether the information required by the solicitation has been submitted and is properly completed. Applications will be reviewed for relevance to the Energy Resources program and for responsiveness to the requirements of the solicitation. Volume I of the application will be reviewed to assess the Applicant's eligibility under the lobbying, EPAct and Simpson-Craig Amendment requirements and to check the Cost Sharing Certification to insure that the cost-sharing requirement has been met. Failure to successfully meet any one of these Preliminary Evaluation criteria may result in the elimination of the application from further consideration in the Comprehensive Evaluation. In the event that an application is eliminated, a notice will be sent to the Applicant stating the reason(s) that the application will not be considered for financial assistance under this solicitation.

5.4 COMPREHENSIVE EVALUATION (AUG 1999)

Applications passing the preliminary evaluation shall be subject to a comprehensive evaluation in accordance with the technical evaluation criteria listed in this section.

The technical evaluation is conducted to determine the merits of the technical application with regard to the potential success of the project as well as future commercial applications. Comprehensive evaluation results in a numerical score for each application for each of the technical evaluation criteria.

The Environmental, Health, Safety, and Security (EHSS) Evaluation, which is not point scored, is conducted to determine the completeness of the Environmental Questionnaire, and to assess the applicant's awareness of EHSS requirements for mitigating project related EHSS risks and impacts.

The cost evaluation, which is not point scored, is conducted to determine the completeness of the cost estimate, appropriateness and reasonableness of the cost, and to assess the applicant's understanding of the likely cost of the proposed work.

5.5 TECHNICAL EVALUATION CRITERIA (AUG 1999)

Technical applications submitted in response to this solicitation will be evaluated and scored in accordance with the criteria listed below. The weighting factors for each technical evaluation criteria are identified below and will be applied to obtain a final evaluation rating for each application.

1. Scientific and Technical Merit (45%)

Degree to which the proposed technology or methodology represents an important advancement toward achieving the "Overall Program Goals" or "Research Objectives" (if applicable) for this Solicitation in the targeted Area of Interest. The degree to which the proposed work identifies and/or makes progress on new concepts, thereby increasing the likelihood of a new successful technology. The degree to which the proposed work is based on sound scientific and engineering principles. Anticipated benefits of the proposed work.

2. Technical Approach and Understanding (35%)

Adequacy and feasibility of the offeror's technical approach. Appropriateness, rationale, and completeness of the proposed Statement of Project Objectives. Adequacy of the proposed Project Network Diagram, project schedule, staffing plan and planned travel.

3. Technical and Management Capabilities (20%)

Credentials, capabilities and experience of key personnel. Demonstrated corporate experience of the offeror and participating organizations in managing similar projects. Clarity, logic and likely effectiveness of project organization including subcontractors to successfully complete the project. The adequacy of the facilities and equipment to perform project tasks.

5.6 COST EVALUATION CRITERIA (JULY 1999)

The costs proposed will be evaluated in response to this solicitation in order to:

(a) determine the level of verifiable cost sharing;

(b) ensure that all work elements included in the Statement of Project Objectives have associated costs, and that those cost appear appropriate and reasonable for the effort proposed; and

(c) assess the applicant's understanding of the likely cost of the proposed work.

5.7 RELATIVE ORDER OF IMPORTANCE OF EVALUATION CRITERIA (JULY 1999)

The evaluation of the technical application will be conducted using preestablished weights to determine the relative merits of the application in accordance with the technical evaluation criteria. The technical evaluation (Volume II - Technical Application) represents 100% of the total evaluation scoring. Although Volume I - Business and Financial Application will not be point scored it will be considered in the selection decision and must be addressed.

5.8 APPLICATION OF PROGRAM POLICY FACTORS (MAY 2000)

These factors, while not indicators of the Applicant's merit, e.g., technical excellence, cost, proposer's ability, etc., may be essential to the process of selecting the application(s) that, individually or collectively, will best achieve the program objectives. Such factors are often beyond the control of the Applicant. Applicants should recognize that some very good applications may not receive an award because they do not fit within a mix of projects which maximizes the probability of achieving the DOE's overall research and development objectives. Therefore, the following Program Policy Factors may be used by the Source Selection Authority (SSA) to assist in determining which of the ranked application(s) shall receive DOE funding support.

1. Desirability to select a project(s) for award of less technical merit than another project(s), if such a selection will optimize use of available funds by allowing more projects to be supported while not being detrimental to the overall objectives of the program.

2. Desirability to select projects that collectively represent a diversity of geographic locations.

3. Desirability to select projects that collectively represent diverse types and sizes of proposing organizations.

4. Desirability to select projects for award that represents a diversity of technology concepts and applications, as well as technical approaches.

5. Desirability to select projects that collectively represent a diversity of types of products, carbonaceous feedstocks, and facilities including refineries, utilities, greenfields, etc.

The above factors will be independently considered by the SSA in determining the optimum mix of applications that will be selected for support. These policy factors will provide the SSA with the capability of developing, from the competitive solicitation, a broad involvement of organizations and organizational ideas, which both enhance the overall technology research effort and upgrade the program content to meet the goals of the DOE.

5.9 BASIS FOR SELECTION AND AWARD (MAY 2000)

The Department of Energy anticipates the award of one or more financial assistance instruments to those applicants whose applications are determined to be in the best interest of the Department in achieving the program objectives set forth in this solicitation. Selection of an application by the Department will be achieved through a process of evaluating and comparing the relative merits of the applicant's complete applications, in accordance with all of the evaluation factors set forth in this section.

This process reflects the Department's desire to accept an application based on its potential in best achieving program objectives, rather than solely on evaluated technical merit or cost. Accordingly, the Department of Energy may select for an award all, none, or any number or part, of an application, based on its decision as to which meritorious applications best achieve the program objectives set forth in this solicitation.

It is important for applicants to note that selection for negotiations will be made entirely on the basis of applications submitted. Applications should, therefore, address specifically the factors mentioned in the evaluation criteria, and not depend upon reviewers' background knowledge.

SECTION VI -- LIST OF ATTACHMENTS

ATTACHMENT A

AREAS OF INTEREST

Coal & Environmental Systems

(1) Power Systems Advanced Research
(2) Gasification Technologies
(3) Combustion Systems
(4) Carbon Sequestration
(5) Environmental & Water Resources
(6) Vision 21 Technologies

Fuel Processing

(7) Natural Gas Processing
(8) Transportation Fuels & Chemicals
(9) Fuels Advanced Research

Oil Technologies

(10) Ultrasonic Oil Well Stimulation
(11) Reservoir Efficiency Processes
(12) Oil & Gas Environmental
(13) Critical Upstream Advanced Diagnostics and Imaging Technologies
(14) Emerging Process Technology

Strategic Center for Natural Gas

(15) Gas Exploration, Production & Storage
(16) Advanced Turbines
(17) Fuel Cells

Area of Interest 1
Power Systems Advanced Research

Background

Advanced Research provides the means by which advanced concepts are transformed into future working technologies. Improvement of our energy infrastructure, which includes power plants, power transmission systems, fuel production and transportation systems, co-production of higher value products (such as chemicals), environmental protection and remediation efforts, is dependent on research. This research must produce technologies that meet the performance specifications for hostile operating conditions, economic constraints of advanced industrial applications, and public demands for a cleaner environment, reliability, and low consumer cost.

Advanced Research develops fundamental understandings of relationships among energy processes, their performance requirements, and the environment, including: a) basic information and knowledge needed to bridge the gap between fundamental science and advanced engineering development programs; and b) innovative concepts and ideas that enhance the pace of technology innovation for fossil energy systems. These crosscutting activities involve research having applications in many, if not all, coal and gas power generation and coal fuels technology areas.

Overall Program Goals

Develop the scientific knowledge base for the development of revolutionary technologies and processes with substantial improvements and advances in power, environmental, and fuel systems, and that will be an integral part of meeting the coal and power systems strategic goals.

Research Objectives for This Solicitation

- Advanced Sensors and Controls
  - Development of contaminant monitoring sensors or techniques, especially those that would facilitate toxics release reporting or rapid source apportionment. Other advanced measurement and analysis techniques that would reduce emissions, increase performance and reliability or reduce maintenance burdens are also of interest. Specific examples include: the development of integrated on-line sampling and analysis systems for monitoring contaminants such as mercury, hydrogen chloride, and other species of interest in advanced power systems operating at high temperatures and pressures.
  - Development of advanced control systems that incorporate such approaches as neural networks, fuzzy logic and modeling to significantly improve the response times relative to current control systems.

- Bioprocessing (Two Closely Interrelated Subprogram Areas)
  - Address environmental challenges associated with coal burning and power plants using biological systems.
  - Develop new methods to promote and accelerate biosequestration of CO_2 from the environment by fostering growth of biological organisms that take up higher levels CO_2 than normal organisms.

- Advanced Materials
  - Cross-cutting research to obtain a fundamental understanding of materials and how they perform in fossil-based process environments and the development of new classes of generic materials that will allow the development of new fossil energy systems or major improvements in existing systems, including development of materials for new systems and capabilities.
  - Research on ceramics (composite structural ceramics, solid state electrolytes, membranes, and ceramic filters), new alloys (aluminides, filters, advanced austenitic and ferritic steels, and coatings and claddings), and corrosion protection. The emphasis is on developing a technology base in the synthesis, processing, life-cycle analysis, and performance characterization of advanced materials.

Area of Interest 2
Gasification Technologies

Background

The Gasification Technologies Program is responsible for fostering the commercialization of gasification-based processes. Integrated gasification-based processes consist of unique combinations of technologies that offer affordable, highly efficient, and versatile options for industry to use available low cost carbon-based feedstocks for meeting a whole host of market applications for electricity, steam, fuels, chemicals, and hydrogen. In doing so, both the domestic resource base and energy production capabilities are expanded.

Compared with today's commercial and advanced technologies, gasification is one of the most efficient and environmentally friendly technologies for the production of low-cost electricity and can be readily adapted for concentrating and sequestering CO_2. Gasification is capable of processing all carbon-based feedstocks including coal, biomass, petroleum coke, municipal waste, etc. to highly valued energy products while converting wastes and contaminants into potentially usable byproducts. It is the only advanced technology that can co-produce a wide variety of commodity and premium products to meet future market requirements, while more fully utilizing the feedstock and at the same time enhancing revenue by supplying differing energy and fuel/chemical product needs.

Gasification is currently used extensively in the petroleum refining and chemical industries to convert low-quality solid and liquid hydrocarbon resources into hydrogen or synthesis gas for internal use in those plants. To be economically attractive, gasification must be able to pay for the capital cost of the gasifier and gas cleanup systems through the use of lower cost feedstocks, production of marketable byproducts, and then use of the cleaned gas in very efficient, advanced conversion turbines and chemical processes. In order to broaden and extend the potential applications of gasification, the Gasification Technologies program sponsors research and development into new process concepts for: Advanced Gasification; Gas Cleaning and Conditioning; Gas Separation; and, By-Product/Product Utilization.

Overall Program Goals

- Reduce capital cost to less than $1,000/kW.
- Achieve plant availability in excess of 90%.
- Achieve overall process efficiencies greater than 60% (HHV).
- Achieve near-zero levels of emissions.
- Concentrate CO_2 for sequestration.
- Reduce operating and maintenance costs.
- Enable fuel-flexible operation with co-feeding of alternatives with primary fuel (coal).
- Increase revenues and reduce wastes through improved byproduct utilization.

Area of Interest 3
Combustion Systems

Background

Combustion Systems is comprised of a fleet of high performance power systems including, Low Emission Boiler Systems, Atmospheric Fluidized Bed Combustors, High Temperature Furnaces, Pressurized Fluidized Bed Systems, High Temperature Heat Exchangers, and Hybrid Gasification/Combustion Cycles. Research and development activities for the high performance systems must meet challenging cost, reliability, availability and environmental goals in order to gain acceptance in the national/international marketplace.

Hybrid Gasification/Combustion Cycles for Advanced Energy Systems is a new program which enhances the existing gasification and combustion systems by utilizing a lower temperature gasifier (1400-1700 °F bed temperature) to partially gasify solid fuels (e.g., coal and/or biomass). The resulting synthesis gas could then be used for either conventional gas turbines or for conversion to fuels, chemicals, or hydrogen. The unconverted carbon and ash, i.e., char, from the partial gasification of the feedstock would be transported to a Combustion System to complete carbon burnout of the char and fine particulates. Improved thermal efficiency, and hence additional power, could be achieved is achieved by utilizing the exhaust gas from the gas turbine for the Combustion System.

Overall Program Goals

- Help the U.S. power industry remain the standard of excellence in low-cost, environmentally acceptable power production world-wide.
- Help U.S. power equipment manufactures and entrepreneurs maintain and/or regain a competitive edge in the global combustion systems market.
- Meet combustion system high efficiency program goals.
- Develop ultra-clean solid and opportunity fuel-based combustion power systems to solve environmental problems.

Research Objectives for This Solicitation

- Fuel Flexibility & Solids Handling/Transfer Systems

  Acquire data and develop advanced systems that will address the technical barriers to the efficient, trouble-free co-firing of biomass and/or pet coke with coal in advanced high-performance and conventional combustion-based power systems. Reliable feed systems to transport solids (coal, char, biomass, limestone …) throughout the Hybrid Gasification/Combustion Cycle. Commercially available transport systems operating in these environments must have the reliability needed to meet the Vision 21 plant availability targets.

- Advanced Filtration

  Resolve hot gas filtration issues through R&D to meet the system requirements of the hybrid gasification/combustion system. The hybrid system requires filtration and gas cleanup of the partial gasifier stream in the temperature range of 600 °F to 1200 °F. The goal of the gas cleaning system is to produce a clean gas stream suitable for combustion in a gas turbine, conversion to fuels or chemicals, or delivery to a hydrogen separation membrane. In order to meet the needs of the hybrid system, filter system improvements and innovations are required in the areas of filter system reliability, filter system availability in terms of reduced down time and ease of maintenance, ability to perform multi-contaminant control, and filter system cost.

- Rankine Cycle Improvements

  Improvements in Rankine cycle efficiency are a consequence of higher steam temperatures in the cycle. Research data and studies are sought to evaluate the relationship between higher steam cycle temperatures and overall economics. Economic factors should consider the higher costs of the power system components, including the boiler, turbine, and connecting piping, valves, etc. The availability of new materials and design and manufacturing techniques may result in the optimum cycle temperature for steam (main, reheat) being

increased from 1000 °F to 1330 °F. Proposals should consider the issue of steam cycle temperature versus overall costs over near, intermediate, and long-term time frames.

- Improved Reliability and Cost Reductions

  Identify and develop improvements to Combustion Systems to achieve low cost capital and operating targets for near and mid-term power plant applications. Targets are expected to address component cost, durability, reliability issues necessary to achieve high plant availability/dispatch characteristics to insure commercial acceptance.

Area of Interest 4
Carbon Sequestration

Background

The availability of clean, affordable energy is essential for the prosperity and security of the United States and the world in the 21st century. Emissions of CO_2 into the atmosphere are an inherent part of electricity generation, transportation, and building systems. However, increases in CO_2 emissions from energy systems and other human activity may be causing changes in the earth's climate, changes that could be harmful to human health and global economic prosperity. Much uncertainty is associated with the global climate change issue, but it is possible, even likely, that deep cuts in net CO_2 emissions from human activity will be required over the next 50 to 100 years.

Carbon sequestration enables the continued use of fossil fuels in energy systems while addressing stabilization of atmospheric CO_2 levels. Carbon sequestration includes capturing CO_2 gas from fossil energy technologies and other point sources and sequestering it, as well as reducing atmospheric concentrations by enhancing the uptake of CO_2 through natural sinks (e.g., forests, oceans, soil).

The main challenges for the DOE Carbon Sequestration Program are to reduce the cost of sequestration, develop a broad suite of sequestration options, and ensure that long-term sequestration practices are effective and do not introduce any new environmental problems.

Overall Program Goals

- Provide economically competitive and environmentally safe options to offset all projected growth in baseline emissions of greenhouse gases by the U.S. after 2010, with offsets starting in 2015.
- The long-term cost goal is in the range of $10/ton of avoided net costs for carbon sequestration.
- Offset at least one-half the required reductions in global greenhouse gases, measured as the difference in a business-as-usual baseline and a strategy to stabilize atmospheric CO_2 concentrations at 550 ppm, beginning in the year 2025.

Research Objectives for This Solicitation

- Development of concepts that combine CO_2 capture with concomitant reductions of criteria-pollutant emissions.
- Sequestration of CO_2 in depleted or unused oil and gas reservoirs, including development of methodologies that validate and verify the amount of CO_2 sequestered.
- Sequestration assessment capabilities to evaluate technological options in a total systems context, considering costs and impacts over a full product cycle, and societal and environmental effects needed for assessing tradeoffs between local environmental impacts and global impacts.

Area of Interest 5
Environmental & Water Resources

Background

The Environmental and Water Resources Product Line is responsible for the development of advanced environmental controls for emissions (air, water, and solids) from coal-based power systems. The program is also concerned with the use and disposition of coal combustion by-products (CCBs), as well as the potential impact of fossil-fuel production and utilization on watersheds. Further, the research being carried out provides high-quality scientific information on present and emerging environmental issues for use in regulatory and policy decision-making. Environmental considerations and the concomitant need for low-cost compliance options are the primary drivers of the current research program. The 1990 Clean Air Act has raised the bar relative to the environmental performance of coal-based power systems. Reductions in allowable emissions of sulfur dioxide (SO_2), nitrogen oxide (NO_x), particulate matter, acid gases, and mercury are being implemented or planned to deal with issues concerning ambient air quality (ground-level ozone, PM2.5, air toxics), visibility impairment (PM2.5, regional haze) and the health of terrestrial and aquatic ecosystems (mercury, acid rain, eutrofication). The potential impact of fossil-fuel production and utilization on surface and groundwater has also brought into sharp focus the need for high-quality information and technology related to future regulatory requirements. To address these numerous environmental challenges, NETL is carrying out a well-focused, highly leveraged research program in the areas of fine particulate matter (PM2.5), NO_x, mercury/air toxics, acid gases, CCBs, and water. The success of the program is intimately tied to key collaborations and partnerships established with industry, Federal, state, and local agencies, and the academic and research communities.

Overall Program Goals

- Develop database on the relationship between ambient air quality and emissions from fossil-fuel-based power production.
- Develop technology by 2003 for controlling NO_x emissions to a level < 0.15 lbs/million Btu at three quarters the cost of selective catalytic reduction.
- Develop technology by 2005 for reducing mercury emissions by 50-70 percent at less than one half current costs.
- Develop technology by 2003 capable of achieving > 99.99 percent capture of ultra-fine primary particulate matter.
    - Develop technology for achieving > 90 percent acid gas emissions reduction by 2003.
    - Develop new applications for CCB materials and provide data on their environmental acceptability.

Research Objectives for This Solicitation

Evaluate the impact of the control of mercury and other hazardous air pollutant (e.g., arsenic) on the disposal and/or utilization of CCBs and related water-quality issues.

Area of Interest 6
Vision 21 Technologies

Background

Vision 21 is the U.S. Department of Energy's new initiative for developing the technology needed for ultra-clean 21st century energy plants. The goal of Vision 21 is to effectively remove, at competitive costs, environmental concerns associated with the use of fossil fuels for producing electricity and transportation fuels. Achieving this goal will require an intensive, long-range, 15-20 year research and development effort. Industry involvement, beginning at the planning stages, is necessary in order to build the commitment needed and to help ensure market relevance of new technologies. Cost sharing is required. Instead of emphasizing evolutionary improvements in existing technologies, Vision 21 stresses innovation and revolutionary technologies. Innovation is necessary if Vision 21 is to be successful at developing the technology basis for 21st century energy plants with unprecedented efficiency and environmental performance.

Vision 21 focuses on developing the key, critical technologies that will be needed to design and build Vision 21 energy plants. These technologies include gasification, gas separation and purification, combustion and high-temperature heat exchange, turbines, fuel cells, fuels and chemicals synthesis, advanced materials, environmental controls, sensors and controls instrumentation, and computational modeling and virtual simulation. Specific types of plants or plant configurations are not emphasized because it is unknown what kinds of plants, feedstocks, and products the market will favor 15-20 years into the future. Vision 21 also has unique systems integration issues. Good systems integration know-how will permit high-performance subsystems to be combined into ultra-clean, efficient, low-cost plants that operate reliably. Vision 21 does not support development of technology for transporting or injecting CO_2 for direct sequestration; however, separation of CO_2 from the gases exiting the Vision 21 energy plant is an appropriate topic.

Overall Program Goals

- The overall program goal is to effectively remove, at competitive costs, environmental concerns associated with producing electricity and transportation fuels.
- Performance targets for Vision 21 plants include:
  - Power: generating efficiencies >60% using coal and >75% using gas.
  - Environmental: atmospheric release of
    - <0.01 lb/million Btu sulfur and nitrogen oxides, <0.005 lb/million Btu particulate matter.
    - < one-half of emission rates for organic compounds listed in the "Utility HAPS Report" (Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generation Units - Final Report to Congress, Volume 2, EPA-453/R-98-004b, 1998.)
    - < 1 lb/trillion Btu mercury.
    - 40-50% reduction of CO_2 emissions by efficiency improvement, 100% with sequestration.
  - Costs: Aggressive targets for capital and operating costs; products of Vision 21 plants must be cost-competitive with other energy systems with comparable environmental performance, including specific carbon emissions.
  - Timing: Major benefits from improved technologies begin by 2005; designs for most Vision 21 subsystems and modules available by 2012; Vision 21 commercial plant designs available by 2015.

Research Objectives for This Solicitation

- Develop innovative approaches in the critical technologies listed above that can make substantial contributions to achieving Vision 21 program goals.
- Address systems integration issues related to Vision 21. Systems integration includes (1) systems engineering and compatibility issues related to linking components in Vision 21 plants, e.g., gasifiers with combustion turbines, fuel cells, and gas cleanup devices; (2) dynamic response and control of Vision 21 plants, including startup and shutdown, load following, and response to upset conditions; and (3) application of industrial ecology principles to Vision 21 plants, including the development and evaluation of approaches to recycle all process effluents that would otherwise be regarded as wastes.

Area of Interest 7
Natural Gas Processing

Background

Gas-to-Liquids (GTL) is an integral component of DOE's Natural Gas Processing program which focuses on advancing technology, needed to make marketable, natural gas resources that are below acceptable pipeline quality and/or remote from pipeline access to markets. GTL product activity emphasis is on chemically changing gas to a stable, ultra-clean burning hydrocarbon liquid, fully compatible with modern vehicle fuels used to power our vast auto and truck fleet. Secondary product focus is on developing small scale LNG technology ('gas-to-liquid-to-gas') as well as examining feasibility of converting gas to dense hydrate solids for transport ('gas to solids').

The compelling driver for the GTL effort is to expand the options for the transport and marketability of the vast gas resources of Alaska's North Slope (ANS). Beginning as early as 5 to 8 years from now, upwards of more than 22 Tcf of gas will be available from Alaska's giant Prudhoe Bay oil field as it becomes largely depleted, and the gas is no longer needed to maintain reservoir pressure. Including gas elsewhere on the ANS, as much as 300,000 to 700,000 bpd of GTL product for 20 to 30+ years is conceivable. Moreover, such product could ensure the economic and even operating feasibility of the ANS oil transport pipeline, now seeing its volume dwindle as ANS oil depletion becomes more pronounced.

GTL using Fischer-Tropsch (FT) technology is an obvious technology for ANS gas but one sorely tested by the economics of current state-of-the-art FT and the ANS's distant and inhospitable location and climate. Accordingly, GTL program emphasis is directed to advancing and demonstrating technology that can reduce first (conversion) step, expensive costs of syngas manufacture, as well as costs of subsequent syngas conversion to a liquid and any upgrading of such liquid to needed fuel products. In the latter efforts, the program has worked closely with the Transportation Fuels and Chemicals group which has common technology. Because of the likely interest of public and private Alaskan stakeholders to make gas utilization decisions in the near term, the GTL program has particular interest in early delineation of optimum fuel products it can make so as to enhance GTL process economics in the face of extra capital plant costs associated with remote Alaska. The same near term driver is seen for small offshore GTL units that may aid recovery of oil and gas now being found beyond pipeline reach in the deep Gulf of Mexico.

Overall Program Goals

- Delineate, test and/or demonstrate GTL-FT process enhancements and liquid fuel product mixes that can enhance the economics of utilizing stranded domestic gas, thereby reducing and even eliminating public and private subsidies that may be necessary to market our remote natural gas beginning in the 2005-2008 period.
- Develop novel methods of upgrading low quality natural gas to meet pipeline specifications.

Research Objectives for This Solicitation

- Fischer-Tropsch (FT) Process Components and Integration

  Develop and demonstrate advances in one or more parts of multi-step FT gas conversion processes and/or their integration to improve the prospective economics of stand alone GTL operations and/or those integrated with other product manufacture, suitable for prospective U.S. locations. Components include equipment, catalysts, etc., to technology steps such as syngas manufacture, product separation and the like.

- Product Tailoring

  Delineate and demonstrate FT process adjustments required to customize GTL products that would maximize GTL contribution to the ultraclean motor vehicle fuel mix needed in the next decade. Performer must be able to document fuel performance enhancement.

- Gas Upgrading

  Demonstrate new natural gas upgrading technologies to show the market potential for new and economic gas upgrading methods for on-shore, off-shore and landfill applications.

Area of Interest 8
Transportation Fuels & Chemicals

Background

Transportation Fuels & Chemicals (TF&C) is a market-driven, product-oriented program that supports applied research directed toward producing ultra-clean transportation fuels and developing more efficient processes for manufacturing chemicals. The feedstock is coal, alone or in combination with other carbon-based feedstocks. The present R&D emphasis is on the conversion of synthesis gas (carbon monoxide and hydrogen) to the desired products, but other processes are acceptable if they meet the economic, environmental and quality criteria demanded by the market. The synthesis gas route has the advantage that, in addition to coal, it can also be used to convert natural gas, refinery wastes, municipal wastes and biomass to high-value products.

The principal program driver is clearly environmental. Vehicles currently account for a large portion of urban and regional air pollution, including carbon monoxide, nitrogen oxides, volatile organic compounds, and particulates. A strong market demand is emerging for fuels that, in combination with advanced engines and exhaust gas treatment, produce extremely low emissions. Tests have already shown, for example, that diesel fuel produced via the Fischer-Tropsch (F-T) conversion of synthesis gas result in significant reductions of particulates, carbon monoxide and other pollutants when compared to present diesel fuel used in standard, unmodified diesel engines.

The TF&C program also addresses the needs of the chemical industry for more efficient, lower cost manufacturing processes. Past TF&C supported research has led to the very successful demonstration of the Liquid Phase Methanol (LPMEOHTM) Process in the Clean Coal Technology Program. This process differs from traditional methods for making methanol in that it uses powdered rather than pellet catalyst and a slurry reactor instead of a fixed bed version. The slurry reactor system has many advantages, including lower cost, better plant operability and purer methanol product. Research on other chemical products may lead to equally positive results.

Overall Program Goals

- Help the U.S. transportation industry develop technologies that will enable it to expand the global fossil resource base upon which to produce affordable, ultra-clean transportation fuels.
- Facilitate the establishment of a new U.S. industry that produces significant quantities of ultra-clean fuels from domestic resources of coal.
- Help the U.S. chemical industry develop advanced processes for manufacturing chemicals.
- Reduce CO_2 and other greenhouse gases through life cycle engineering.

Research Objectives for This Solicitation

- Reactor/Process Development
  - Develop technologies for the efficient conversion of coal, alone or in combination with some other feedstock (such as biomass or carbonaceous waste), to clean transportation fuels, fuel blending stocks or additives and chemicals.
  - Develop ancillary technologies that will facilitate the commercial deployment of coal conversion systems. Examples include: sturdy iron-based catalysts, improved catalyst activation procedures, efficient catalyst/wax separation techniques, advanced methods for hydrogen/synthesis gas production and gas separation, and continued development of slurry reactor technology.

- Process Evaluation

  Evaluate and optimize conversion technologies through testing at laboratory-, bench-, or proof-of-concept - scale, either alone or integrated with other processes.

- Product Upgrading/Testing
  - Develop the refining strategy for making ultra-clean fuels from the products of advanced conversion processes.
  - Characterize and evaluate ultra-clean fuels to determine the impact of fuel properties on engine performance and emissions.

Area of Interest 9
Fuels Advanced Research

Background

The Advanced Fuels Research and Specialty Markets Product line is charged with providing the technical basis for, and promoting the development and deployment of, cost effective technologies that will enable fossil fuels to continue to provide the energy baseline for the world in an environmentally responsible manner. The several, complex products of the Advanced Fuels Research Program consist of knowledge bases underpinning fuels and separation technologies related to fuels and minerals production and a suite of advanced technologies and databases that facilitate the highly efficient, cost-effective, and environmentally friendly conversion of fossil resources into fuels, feedstocks, and other high-value products.

Overall Program Goals

The goal of the Advanced Fuels Research and Specialty Markets Product line is to provide the scientific and engineering knowledge base with which industry can produce economically competitive and environmentally acceptable clean fuel products and feedstocks for introduction as U.S. and world market conditions warrant.

Research Objectives for This Solicitation

- Study production of fuels and chemicals directly from coal by using an extractive process that minimizes processing and solvent costs and that may be integrated into a coproduction plant.
- Study production of high value carbon materials from coal by using an extractive process that minimizes processing and solvent costs and that may be integrated into a coproduction plant.
- Explore advanced concepts in the physics and chemistry of fuels developments.
- Develop new mechanical devices and materials for the hydrogen infrastructure.

Area of Interest 10
Ultrasonic Oil Well Stimulation

Background

The Oil Well Stimulation Program (OWSP) as part of the Advanced Drilling, Completion, and Stimulation Program is driven by the needs of the domestic industry for more effective, cheaper, well stimulation technology. In response to the Petroleum Technology Transfer Council's (PTTC's) 1999 report on Technological Priorities of Independent Oil and Gas Operators, the OWSP has been targeted for actions with a strong emphasis on technologies to stimulate production in the nation's oil wells. Producers are working with existing wells and clearly, breakthrough technologies are needed to extend the life of these wells and increase ultimate production from the fields where the technology will be applied. The challenge is to take basic scientific principles and apply them to these wells in an effort to maximize production in a safe and environmentally friendly manner.

Research Objectives for This Solicitation

Investigate Ultrasonic Technology for Oil Well Stimulation and Develop Ultrasonic Device for Oil Well Stimulation

- Our R&D emphasis through this effort is to develop application of processes that utilize ultrasonic principles to stimulate additional oil well production in an energy efficient and economical manner. While basic research in this area is encouraged, this solicitation is intended to expedite the application of ultrasonic technology and promote early deployment and oil field usage. To this intent, the investigation shall include integration of prior research findings, where appropriate.
- The prototype development of a suitable downhole ultrasonic stimulation device shall be considered as an important element of this research effort.

It is contemplated that experimental research tasks, at a minimum, will achieve:

- Development or improvement of the cost effectiveness of an ultrasonic oil well stimulation method.
- Development or improvement of laboratory scale experiments/measurements and/or theoretical studies of ultrasonic oil well stimulation.
- Collection and reduction of experimental or analytical data showing the performance, effectiveness, and significance of the laboratory and theoretical results.
- Development and field test of an ultrasonic device in an oil well.
- Preparation and delivery of technical reports (quarterly, annual, final) showing the results of the project, including details of all relevant performance characteristics and techniques by which they were calculated.
- Detailed specification of performance characteristics, their technical significance in Oil Well Stimulation systems, their potential economic significance, and the recommendations for further research shall be documented.

Area of Interest 11
Reservoir Efficiency Processes

Background

There is a need to continue to develop known domestic oil resources to slow the rate of decline in U.S. crude production which is forcing an ever increasing dependency on foreign oil suppliers. Improved Oil Recovery (IOR) methods will play a significant role in the exploitation of these domestic resources. New techniques to overcome the problems associated with IOR methods are needed in order to meet the energy demands of the immediate future. The importance of increasing production of crude oil left in U.S. reservoirs after conventional recovery techniques have reached economic limits is well known and well documented.

The Department of Energy's (DOE) National Petroleum Technology Office (NPTO) seeks research proposals on innovative technology which will substantially increase predictability and improve oil extraction.

Overall Program Goals

Development or improvement in the cost effectiveness of gas flooding, chemical flooding, and/or microbial methods.

Development or improvement of laboratory scale experiments/measurements and/or theoretical studies of gas flooding processes, chemical flooding processes, and/or microbial flooding processes in pertinent areas for light oil recovery. Collection and reduction of experimental or analytical data showing the performance, effectiveness, and significance of the laboratory and theoretical results

Research Objectives for This Solicitation

- Carbon Dioxide Gas Flooding
    - Proposals are sought to reduce the amount of oil bypassed due to the poor sweep of carbon dioxide.
    - Proposals are sought to conduct carbon dioxide floods below the carbon dioxide minimum miscibility pressure.
- Chemical Flooding
    - Proposals are sought for the development of low cost polymers for use in polymer flooding (Polymer, Gels, Sweep Improvement, Profile Modification, Reservoir Conformance).
    - Proposals are sought to develop new cost-efficient surfactants for oil recovery.
- Microbial Flooding
    - Proposals are sought to find methods to use microbes to make cost-effective surfactants for recovering oil.
    - Proposals are sought to find microbes that can injected into the reservoir to produce oil.

Area of Interest 12
Oil & Gas Environmental

Background

The Oil and Gas Environmental program focuses on maximizing domestic oil and gas production by reducing the cost of effective environmental protection. Most oil and gas production in the U.S. is from mature fields, and many wells are nearing their economic limit. As income from these wells declines, many of the operating costs, such as environmental compliance, remain static or increase, forcing the operator to abandon the wells even though a substantial amount of recoverable oil remains. This program works to reduce the costs associated with complying with state and federal environmental regulations.

State permitting processes are a continuing source of cost and delay for almost all operators. The states have made major strides in automating their data handling and permit review processes, but much remains to be done to drive down the cost and the time required to review and approve permits. Of special concern is permitting on Federal lands where operators must submit information both to the State and to the Bureau of Land Management. The present R&D emphasis is on technologies that streamline state data management and permitting processes, especially those that reduce the duplication of effort required to submit permitting and compliance data for wells on Federal lands.

Overall Program Goals

- Enable industry to reduce compliance costs and improve environmental performance by providing lower-cost compliance technologies.
- Provide a sound scientific basis for cost-effective, risk-based regulatory decisions,
- Improve access to public lands and sensitive environments by demonstrating environmentally protective technologies.

Research Objectives for This Solicitation

- State Data Management

  Develop or demonstrate technologies or methodologies that will streamline environmental regulations or regulatory processes, reduce the cost of environmental compliance, or allow regulators to make faster and better permitting decisions for oil and gas operations, especially on Federal lands.

Area of Interest 13
Critical Upstream Advanced Diagnostics and Imaging Technologies

Background

Advanced Diagnostics and Imaging Technology is directed toward cross-cutting, interdisciplinary research leading to the development of advanced and innovative technologies for imaging and quantifying reservoir rock and fluids properties necessary for improved oil recovery. It is recognized that the reduction of economic and environmental risks associated with both exploration and exploitation are directly related to the understanding and quantification of reservoir heterogeneity as it impacts fluids movement. The development and refinement of technologies and methodologies that will improve resolution of reservoir rock, rock properties, and associated fluids at the pore-to-field scales is critical in the development of improved geologic and engineering models from which more accurate simulation efforts help to quantify risk.

The discovery and development of new resources within the U.S. will likely come from deeper regions containing greater geologic complexity such as the ultra-deep water and subsalt areas of the Gulf of Mexico and overthrust regions. Successful exploration and exploitation of these and other environmentally sensitive regions are dependent on accelerated improvements in reservoir imaging capability and technology development. An accurate descriptive and quantitative 'picture' of the reservoir, fluids distributions and associated phenomena (such as naturally occurring fractures) is critical in the siting of exploration wells and the planning of exploitation strategies. The application of these technologies leading to the implementation of secondary and enhanced recovery processes are critical to project economic success.

Overall Program Goals

- Improve geophysical acquisition, processing and/or interpretation technologies to increase resolution and accuracy, and to gain additional petrophysical insight from acquired data for economic exploration and exploitation of technologically challenging environments.
- Increase understanding and measurement of rock and fluid properties, rock-fluid interaction, and fluid flow; and develop techniques to measure reservoir properties that are not currently available.
- Improve interdisciplinary, reservoir characterization technologies and methodologies that tie reservoir rock and fluids engineering parameters more directly through the geologic model to the reservoir engineering model for subsequent simulation efforts.
- Provide tools and methodology to accurately describe the reservoir and apply the information to prediction of oil locations, volume estimates and responses to recovery processes.

Research Objectives for This Solicitation

In each subsequent area, proposed projects shall include an ongoing transfer of new technologies, methodologies and data that can be used to improve the performance of the domestic oil industry through partnering with industrial organizations and other interested groups.

- Geoscientific Measurement

  Develop technologies and analytical techniques for the acquisition, processing and/or interpretation of subsurface data. Research efforts focusing on increased resolution and prediction of reservoir properties is encouraged. Various technologies directed at acquisition of data for scales ranging from pore-to-field scales will be considered.

- Reservoir Description

  Develop technologies and methodologies used to quantify or predict oil reservoir architecture, fluids distribution and interactions, and fluids movement prior to, and/or during oil production. Interdisciplinary reservoir characterization efforts should be directed toward more accurately transferring critical reservoir rock

and fluids engineering parameters through the geologic model to the reservoir engineering model for subsequent simulation.

- Naturally Fractured Reservoirs

  Development of technologies and methodologies needed for the identification, quantification and geologic modeling of naturally occurring fractures and fracture systems in oil reservoirs. Relating oil production from naturally fractured reservoirs to in-situ stresses and changes in stress state with production and/or injection may lead to critical insights needed to optimize management practices.

Area of Interest 14
Emerging Process Technology

Background

The U.S. refining industry is facing increasingly stringent environmental requirements while the crude sources have become increasingly difficult to process. Over the last two years the average gravity of crude has dropped 2 API while the average sulfur content continues to steadily increase. At the same time, the industry has had to meet more stringent environmental requirements. DOE is seeking proposals to assist the U.S. petroleum industry in developing the fundamental knowledge needed to improve, or even revolutionize the petroleum refining process.

Overall Program Goals

- Increase use of domestic heavy crudes.
- Meet environmental needs and requirements.
- Provide sound science for the future regulatory framework affecting the industry.
- Maintain supply.
- Be cost effective.

Research Objectives for This Solicitation

This solicitation seeks to build on past research and current programs in the Office of Fossil Energy's Oil Processing program. DOE's downstream petroleum research has traditionally centered on developing a fundamental understanding of petroleum and innovative processing projects. For this solicitation, proposals should focus on either fundamental science or on innovative approaches for petroleum processing, particularly for processes that enhance production of high-quality fuels from the fraction of crude boiling above 650 °F.

- Fundamental Science. Proposals in this area should increase understanding of petroleum and/or petroleum products. Areas of interest include (but are not limited to):
  - Aromatics in petroleum and petroleum products. As an example, a study could examine the chemistry that determines the differences between the aromatics in the feed versus the aromatics in products. This would help in determining the reactions and reaction pathways taking place in the process.
  - Fundamental properties of higher-boiling sulfur species, particularly their reaction behavior.
  - Fundamental understanding of the how the physical properties of a fuel impact lubricity, conductivity, or metals compatibility.

- Innovative Approaches for Petroleum Processing. DOE's petroleum office is seeking to fund laboratory-scale processing projects that are innovative in nature. Examples of the type of projects that could be funded under this solicitation include (but are not limited to):
  - Development of a multi-functional processing unit that would perform more that one processing step in a single unit.
  - A unit operation that could be performed at significantly lower temperatures and/or pressures (excluding process optimization).
  - Catalyst systems that would improve product quality or lower processing costs or both.

  Innovative chemical or physical processes that could enhance the use of the bottom of the barrel are of particular interest.

Area of Interest 15
Gas Exploration, Production & Storage

Background and Overall Program Goals

The goal of NETL's GEPS program is to ensure an abundant, economical supply of natural gas with minimal environmental impact. The many economic, environmental, and national security benefits of increased gas use will only be realized if our abundant natural gas resources can be converted into reserves (gas profitably producible at reasonable prices) at a pace necessary to support the growing demand. This requires a steady stream of new technology to: 1) increase production from conventional reservoirs in the near-term; 2) unlock the potential resources in low-permeability formations in the Rocky Mountains and other regions in the mid-term (in 2010 conventional reservoir production will peak); and, 3) develop entirely new sources such as very deep gas and methane hydrates after 2015.

To expand production from conventional reservoirs, NETL's Secondary Gas Recovery program is developing diagnostic tools to find overlooked compartments of gas behind, between, or below existing well bores. The Stripper Well program is ensuring that valuable gas resources are not abandoned prematurely and lost forever by developing tools that address the inadequacies of these marginal production wells.

To unlock the potential of more difficult and complex reservoirs classified as low-perm, NETL is conducting Resource and Reserve Assessments in partnership with other agencies to more fully understand the resource. In addition, NETL is developing natural fracture detection methods and technologies that precisely locate large pools of gas in these reservoirs without drilling large numbers of wildcat wells. Further, the application of NETL sponsored horizontal well technology allows more fractures to be tapped with fewer wells, thus, reducing the environmental footprint of drilling activity.

To meet long-term supply needs, NETL is developing technologies to tap new frontier resources such as very deep gas and methane hydrates. NETL's Deep Gas program is developing systems for faster drilling through the high temperature, high pressure, hard rock environment found below 16000 ft well depths. NETL is working on revolutionary drilling systems with drill bits flexible enough to drill through a wide variety of rock formations equipped with 'smart' information systems capable of 'real-time' downhole monitoring. In the future, 'smart' systems will allow drillers to more efficiently hit targets and avoid dangers with significantly higher penetration rates than any drilling system available today.

Research Objectives for This Solicitation

- Drilling, Completion, & Stimulation
  Advancements in drilling, completion and stimulation technologies that enable producers to drill more cost effectively and with non-damaging formation fluids to improve production efficiency and to enhance control using smart systems. Also, technologies such as smart well completions and down-hole gas processing that eliminate the need to bring unwanted products to the surface.

- Advanced Diagnostics and Imaging Systems
  Advancements in diagnostic and imaging technologies to locate productive parts of complex gas reservoirs.

Area of Interest 16
Advanced Turbines

Background

In response to tomorrow's national power supply challenges, the National Energy Technology Laboratory (NETL) has developed the Next Generation Turbine (NGT) Program to be consistent with DOE's goal for producing reliable, affordable, diverse, and environmentally friendly energy supplies. Technologies developed under the program will be applicable to U.S. fossil plant repowering, central station, and distributed power markets with added potential for other applications, such as defense, marine, mechanical drive, and international power generation. The program will support development of technology to resolve tomorrow's national power supply, electricity reliability, and environmental issues.

The program R&D portfolio has three primary elements:
- Reliability, Availability, and Maintainability (RAM) Improvement.
- Systems Development and Integration.
- Crosscutting Research and Development.

These elements cover the entire life cycle of future turbine power-plant development and operation, from advanced concept design to clean, reliable operation. Information and data collected on advanced pollution control technologies and plant operation as a result of this program can be used for policy and regulatory applications.

By developing advanced technology, the program will provide optimal options to meet the nation's future demands for gas-turbine-based power generation. Crosscutting research will be conducted to develop the core technology for next generation systems. The ultimate goal is to ensure that gas turbine power plants provide reliable, clean, and affordable electricity for the United States.

Additional background information can be found at www.netl.doe.gov/scng/end-use/turbines.html

Overall Program Goals

- Providing technology for improved reliability, availability, and maintainability of existing and advanced turbine power plants. Optimizing performance and life-cycle cost of the associated infrastructure.
- Developing advanced turbine power systems for repowering of existing plants, central station capacity, and distributed generation.
- Advocating policies and regulatory positions that will enable advanced gas turbine power plants to provide optimal environmental and economic benefits to the U.S. public.

Research Objectives for This Solicitation

Develop advanced technologies and integrated products to improve RAM of gas-turbine based power plants (greater than 30 MW net output) within five years. This would include:
- Define the information technology (IT) and plant operation system concepts.
- Assess and verify that significant improvements well beyond those that industry would accomplish without government cost share will result from the concepts (i.e., define the government role).
- Define the United States public benefit (i.e., emissions reduction, economic savings, reduction in power outages, systems reliability and power quality etc.) from the advanced products.
- Develop an R&D roadmap to produce the concepts.
- Identify competitive and non-competitive cross-cutting R&D required to produce the concepts.
- Develop the advanced technologies and systems needed to produce the product concepts.
- Integrate the technologies and systems into an IT/plant operations platform for commercial application.
- Demonstrate the product/s at a United States host site.

The proposed products shall be applicable to natural-gas-fueled plants, but can also apply to solid fueled (coal, biomass) power systems.

Area of Interest 17
Fuel Cells

Background

Fuel Cell technology development seeks to dramatically reduce the cost of fuel cell stacks or increase the efficiency of fuel cell systems. New advances offer to potentially lower fuel cell system costs, shorten development time, take advantage of economy of scale and mass customization, expand the fuel cell market, exploit the synergy between fuel cells and turbines, and simplify the fuel cell balance of plant (BOP).

Fuel cell concepts capable of approaching $100/kilowatt stack costs and fuel cell system efficiencies approaching 70-80% are desired to meet the Vision 21 goals. The Solid State Energy Conversion Alliance (SECA) Program goals will require a fuel cell system that can be manufactured for $400/kW by 2010. The Fuel Cell program has focused on fuel cell stacks, fuel cell systems, and fuel cell hybrid system concepts. Some of the barrier issues in order to reach these goals towards technology development include:

- Advanced fuel cell materials and manufacturing processes.
- Improved fuel cell designs.
- Improved modeling methods.
- Advanced low-cost BOP components.
- Technology for advanced system operation and life-cycle cost reduction.

Fuel cell hybrid system concepts involve heat engines combined with fuel cells capable of meeting the goals of the Vision 21 Program. Specifically, proposed fuel cell/heat engine hybrid concepts may include fuel cell/turbine hybrids and other fuel cell/engine combinations in a combined cycle mode.

DOE encourages proposals for a variety of end-use applications and which will be conducted by teams including university/industrial consortia, national labs, research institutes, and NETL in-house.

Overall Program Goals

The Fuel Cell Program has set the following long-term goals:

- Deployment of SECA fuel cells in select markets, starting in 2005.
- Reduce the manufacturing costs of SOFC systems to $400/kW by 2010.
- Develop a fuel cell system for broad civilian and military markets.
- Achieve an efficiency of 70-80% (LHV) for V21 Hybrid Systems.
- Achieve fuel flexibility.

SECTION VI -- LIST OF ATTACHMENTS

ATTACHMENT B

PRE-APPLICATION COVER PAGE

PRE-APPLICATION

Program Solicitation No. DE-PS26-01NT41048
for
"DEVELOPMENT OF TECHNOLOGIES AND CAPABILITIES FOR DEVELOPING COAL, OIL, AND GAS ENERGY RESOURCES"

AREA OF INTEREST: (See SECTION VI, ATTACHMENT A for Areas of Interest)

Number	Area of Interest

PROJECT TITLE: _____

_____

Period of performance: _____ for the entire project
DOE cost: _____ for the entire project
Applicant cost share (min 20% of total required): _____ for the entire project
Total project cost (sum of DOE and cost share): _____

	Name	Address	Phone & E-mail
Applicant (organization)			
Contact person			

PROPRIETARY INFORMATION: Does this submittal contain Proprietary or Confidential Information?

____ NO ____ YES (if yes, complete box below, as prescribed in **Section II, Paragraph 2.19)**

NOTICE OF RESTRICTIONS ON DISCLOSURE AND USE OF DATA

The data contained in pages [_____] of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data therein to the extent provided in the award. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the applicant.

NAME OF AUTHORIZED OFFICIAL: _____

SIGNATURE: _____

DATE: _____

SECTION VI -- LIST OF ATTACHMENTS

ATTACHMENT C

VOLUME I BUSINESS AND FINANCIAL APPLICATION COVER PAGE

VOLUME I – BUSINESS AND FINANCIAL APPLICATION

Program Solicitation No. DE-PS26-01NT41048
for
"DEVELOPMENT OF TECHNOLOGIES AND CAPABILITIES FOR DEVELOPING COAL, OIL, AND GAS ENERGY RESOURCES"

AREA OF INTEREST: (See SECTION VI, ATTACHMENT A for Areas of Interest)

Number	Area of Interest

PROJECT TITLE: _____

_____

___

Applicant (Organization)	Congressional District	
	State	District Number
Team Member (Organization)		

PROPRIETARY INFORMATION: Does this submittal contain Proprietary or Confidential Information?

___ NO ___ YES (if yes, complete box below, as prescribed in **Section II, Paragraph 2.19**)

NOTICE OF RESTRICTIONS ON DISCLOSURE AND USE OF DATA

The data contained in pages [_____] of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data therein to the extent provided in the award. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the applicant.

NAME OF AUTHORIZED OFFICIAL: _____

SIGNATURE: _____

DATE: _____

SECTION VI -- LIST OF ATTACHMENTS

ATTACHMENT D

VOLUME II TECHNICAL APPLICATION COVER PAGE

VOLUME II – TECHNICAL APPLICATION

Program Solicitation No. DE-PS26-01NT41048
for
"DEVELOPMENT OF TECHNOLOGIES AND CAPABILITIES FOR DEVELOPING COAL, OIL, AND GAS ENERGY RESOURCES"

AREA OF INTEREST: (See SECTION VI, ATTACHMENT A for Areas of Interest)

Number	Area of Interest

PROJECT TITLE: _____

_____

Applicant (Organization)	Congressional District	
	State	District Number
Team Member (Organization)		

PROPRIETARY INFORMATION: Does this submittal contain Proprietary or Confidential Information?

____ NO ____ YES (if yes, complete box below, as prescribed in **Section II, Paragraph 2.19**)

NOTICE OF RESTRICTIONS ON DISCLOSURE AND USE OF DATA

The data contained in pages [_____] of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data therein to the extent provided in the award. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the applicant.

NAME OF AUTHORIZED OFFICIAL _____

SIGNATURE: _____

DATE: _____

SECTION VI -- LIST OF ATTACHMENTS

ATTACHMENT E

COST SHARING CERTIFICATE

COST SHARING CERTIFICATION

Program Solicitation No. DE-PS26-01NT41048

Cost Share Percentages

I, the undersigned authorized representative for _____ ,
(name of organization)
for the proposal entitled: "_____"
now being submitted to the U.S. Department of Energy for financial assistance pursuant to Program Solicitation No. DE-PS26-01NT41048, do hereby agree to provide a minimum cost share of 20% of total allowable project costs on an "as expended dollar-for-dollar basis." This total value includes both the costs of work to be performed by any National Laboratory (if proposed), and the costs of all private sector work.

_____ _____

Signature of Authorized Representative

Typed Name and Title Authorized Representative

_____

Date